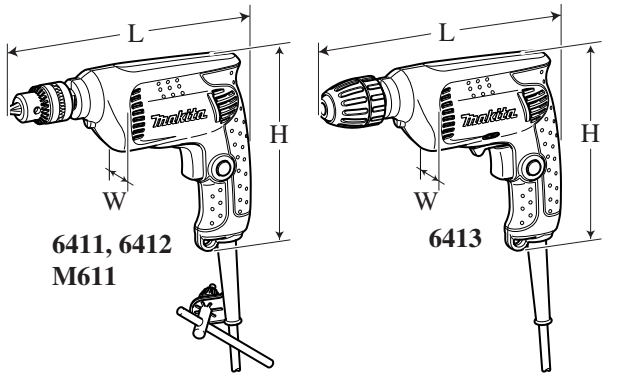
TECHNICAL INFORMATION

Model No. ► 6411, 6412, 6413, M611

Description ► Drill 10mm (3/8")

CONCEPT AND MAIN APPLICATIONS

Models 6411, 6412, 6413 and M611 are cost-competitive 10mm Drills developed as the successor models of 6409, 6410, 6510SB and M610, featuring compact and lightweight design yet with high durability.



Listed below are the specification differences among the four models.

Specification \ Model No.	6411	6412	6413	M611
Reverse switch	No	Yes	Yes	Yes
Variable speed control by trigger	No	Yes	Yes	Yes
Drill chuck type	Keyed	Keyed	Keyless	Keyed

Dimensions: mm (")		
Model	**6411, 6412 M611**	**6413**
Length (L)	228 (9)	234 (9-1/4)
Width (W)	64 (2-1/2)	
Height (H)	183 (7-1/4)	

► Specification

Voltage (V)	Current (A)	Cycle (Hz)	Continuous Rating (W)		Max. Output (W)
			Input	Output	
110	4.3	50/ 60	450	230	350
120	4.0	50/ 60	---	230	350
220	2.2	50/ 60	450	230	350
230	2.1	50/ 60	450	230	350
240	2.0	50/ 60	450	230	350

Capacities: mm (")	Steel	10 (3/8)
	Wood	25 (1)
No load speed: min-1=rpm		**6411**: 3,000 **6412, 6413, M611**: 0 -3,000
Chuck capacity: mm (")		1.5 - 10 (1/16 -3/8)
Double insulation		Yes
Power supply cord: m (ft)		2.0 (6.6)
Net weight: kg (lbs)		1.2 (2.6)

► Standard equipment

Chuck key S10 ..... 1 (for **6411, 6412, M611**)
Key holder 10 ..... 1 (for **6411, 6412, M611**)

Note: The standard equipment for the tool shown above may differ by country.

► Optional accessories

Drills bits

Features and benefits

Compact and Lightweight Design

Powerful 450W* Motor

Delivers power higher than the predecessor models 6409/6410/6510SB.

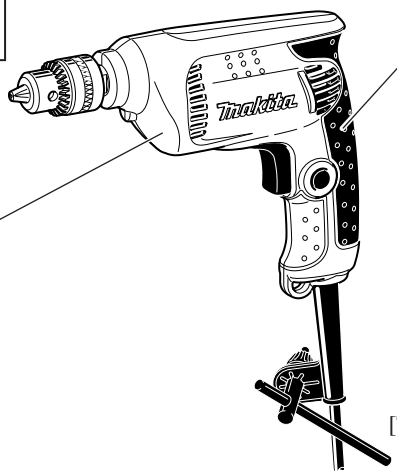
(*450W= continuous rating input)

All Ball Bearing Construction

Ensures durability higher than the predecessor models 6409/6410/6510SB that use three plane bearings and one ball bearing.

Ergonomically Designed Grip with Non-Skid Elastomer Covered Surface

Provides more comfort and control while minimizing hand fatigue and pain.



3,000 min-1 No Load Speed

Optimum for light-duty jobs such as small hole drilling in wood

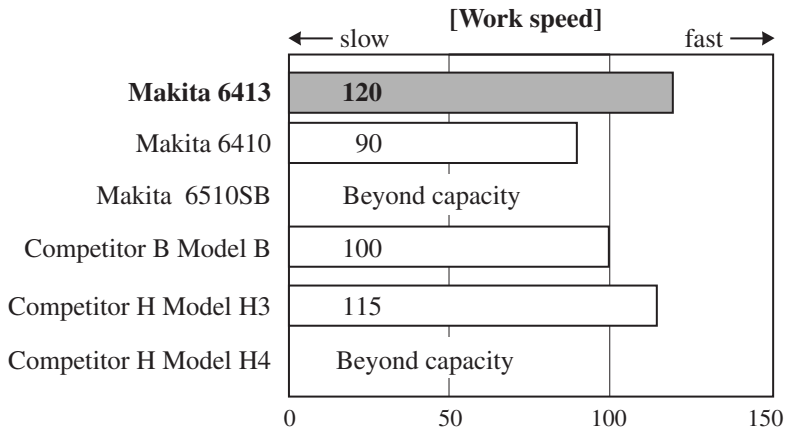
[The image illustrated above is Model 6411.]

Comparison of products

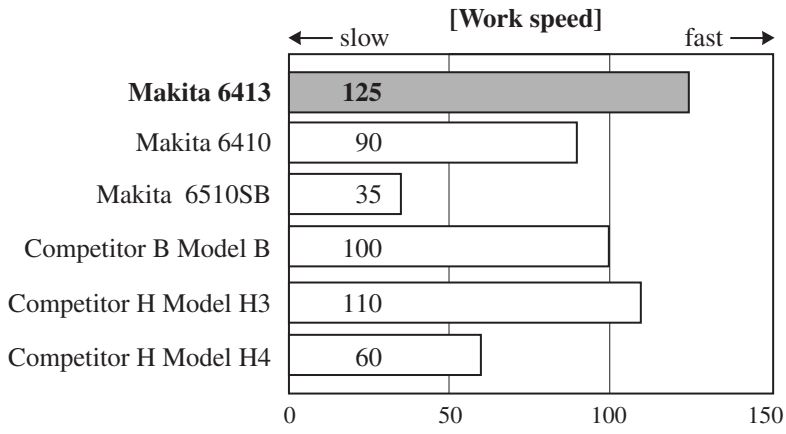
Performance Comparison

Note: 1) Numbers in the charts below are relative values when the capacities of the competitor B's Model B are indexed at 100.
2) The test results depend to a great extent on the hardness of the material, etc.

Test 1: Drilled holes through 60mm thick lauan plywood with 18mm diameter auger bit.



Test 2: Fastened 4.1x38mm wood screws.



Specification Comparison

Specifications \ Model No.		Makita				Competitor B	Competitor H		
		6411/ 6412 (M611)/ 6413	6409/ 6410	6510SB	M610	Model B	Model H1/ H2	Model H3	Model H4/ H5
Continuous rating input: W		**450**	350	230	450	450	420	450	235
Drill chuck	Max capacity: mm (")	**10 (3/8)**	10 (3/8)			10 (3/8)	10 (3/8)		
	Type	**Keyed/ Keyed/ Keyless**	Keyed/ Keyless	Keyed		Keyed	Keyed		
No load speed: min-1=rpm		**3,000/ 0-3,000/ 0-3,000**	2,200/ 0-2,200	2,100	0-3,000	0-2,200	2,800/ 0-2,800	2,500	2,300/ 0-2,300
Capacities: mm (")	Steel	**10 (3/8)**	10 (3/8)			10 (3/8)	10 (3/8)		
	Wood	**25 (1)**	25 (1)	15 (9/16)	25 (1)	25 (1)	25 (1)		18 (11/16)
Reverse switch		**No/ Yes/ Yes**	No/ Yes	No	Yes	Yes	No/ Yes	No	No/ Yes
Variable speed control by trigger		**No/ Yes/ Yes**	No/ Yes	No	Yes	Yes	No/ Yes	No	No/ Yes
Soft grip		**Yes**	No			No	No		
Double insulation		**Yes**	Yes			Yes	Yes		
Power supply cord: m (ft)		**2.0 (6.6)**	2.0 (6.6)			N/A	N/A	2.5 (8.2)	1.8 (5.9)
Dimensions: mm (")	Length	**228/ 228/ 234 (9/ 9/ 9-1/4)**	248 (9-3/4)	239 (9-3/8)	228 (9)	279 (11)	266 (10-1/2)		230 (9)
	Width	**64 (2-1/2)**	63 (2-1/2)	69 (2-3/4)	64 (2-1/2)	N/A	N/A	63 (2-1/2)	59 (2-5/16)
	Height	**183 (7-1/4)**	183 (7-1/4)	165 (6-1/2)	175 (6-7/8)	171 (6-3/4)	N/A	190 (7-1/2)	174 (6-7/8)
Net weight: kg (lbs)		**1.2 (2.6)**	1.2 (2.6)			1.4 (3.1)	1.4 (3.1)		1.1 (2.4)

Repair

CAUTION: Unplug the machine for safety before repair/ maintenance in accordance with the instruction manual!

[1] NECESSARY REPAIRING TOOLS

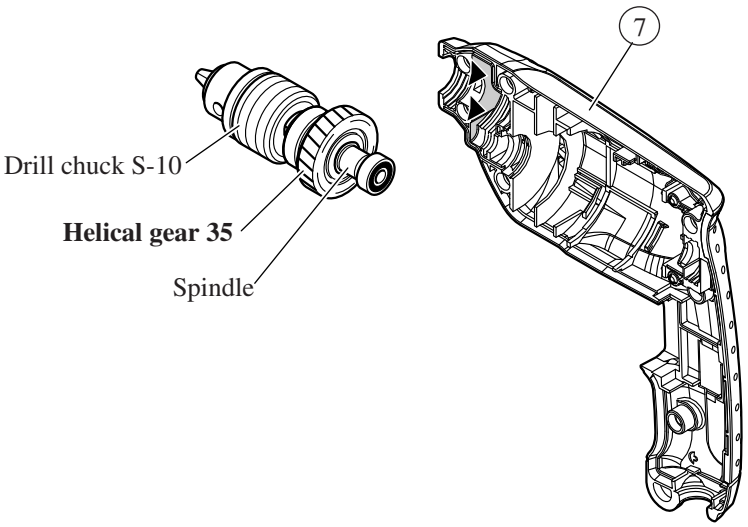
Code No.	Description	Use for
1R004	Retaining ring pliers ST-2	Removing/Installing Ring spring 13 from Spindle
1R139	Drill chuck extractor	Locking Spindle when removing Drill chuck from Spindle
1R220	Ratchet head 9.5	Assembling Drill chuck to Spindle **Note:** Preset the fastening torque of 1R223 to 25- 30 N.m (250- 300kgf.cm).
1R222	Socket adapter	
1R223	Torque wrench shaft 20- 90N.m	
A-33750	Bit Adaptor	
1R231	1/4" Hex. shank bit for M8	
1R269	Bearing extractor	Removing Ball bearing 606ZZ
1R273	Ring spring 26 setting tool B	Removing/Installing Helical gear 35
1R031	Bearing setting pipe 28-20.2	Removing/Installing Ball bearing 6902ZZ

[2] LUBRICATION

Apply Makita grease N. No.1 to the following portions designated with the black triangle to protect parts and product from unusual abrasion.

Item No.	Description	Portion to lubricate
⑦	Housing	Gear room for Helical Gear 35 (Apply approx. 3g.)

Fig. 1



Repair

[3] DISASSEMBLY/ASSEMBLY

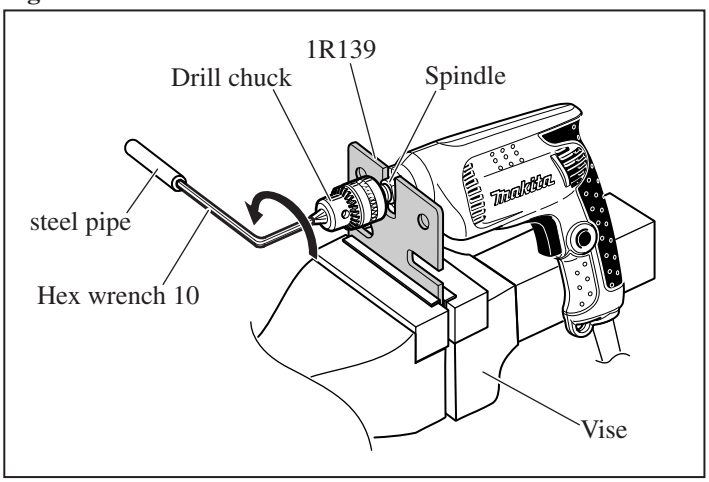
[3] -1. Drill Chuck

DISASSEMBLING

See **Fig. 2**.

1) Fix 1R139 securely in vise, then lock Spindle by putting it in the U-shaped notch of 1R139.
2) Fix Hex wrench 10 securely in Drill chuck. Attach an appropriate steel pipe to Hex wrench 10 as extension bar.
3) Remove Drill chuck from Spindle by turning Drill chuck counterclockwise using Hex wrench 10 and steel pipe.

Fig. 2



ASSEMBLING

1) Assemble 1R220, 1R222, 1R223 and A-33750 as illustrated in **Fig. 3**.
   Note: Preset the fastening torque of 1R223 to 25- 30N.m (250- 300 kgf.cm).
2) Lock Spindle as you did in step 1) of DISASSEMBLING, then fix 1R231 securely in Drill chuck. (**Fig. 4**)
3) Assemble Drill chuck to Spindle by turning 1R231 and Drill chuck clockwise using the repairing tools described in step 1) of ASSEMBLING. (**Fig. 4**)

Fig. 3

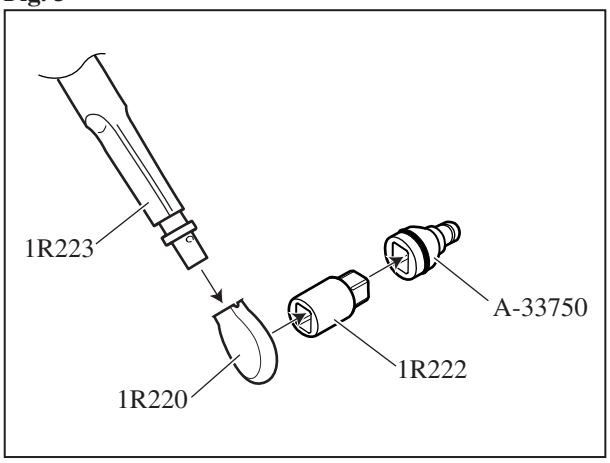
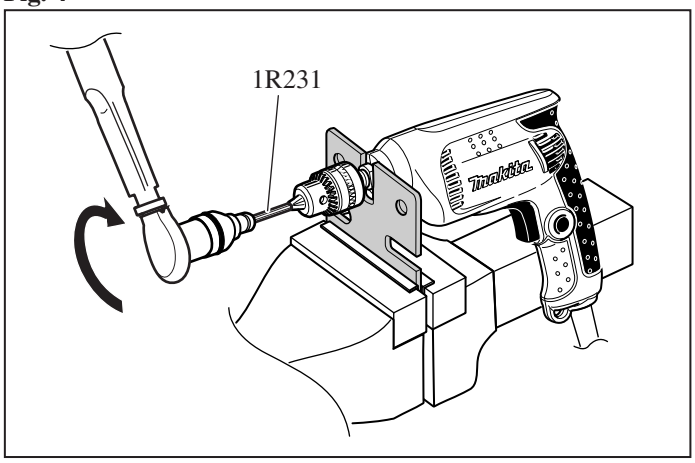


Fig. 4



Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -2. Gear Section

DISASSEMBLING

1) After disassembling Drill chuck as illustrated in **Fig. 2**, separate Housing (R) from Housing (L). Remove Gear section from Housing (L). (**Fig. 5**)
2) Disassemble Gear section as illustrated in **Figs. 6, 7, 8**.

Fig. 5

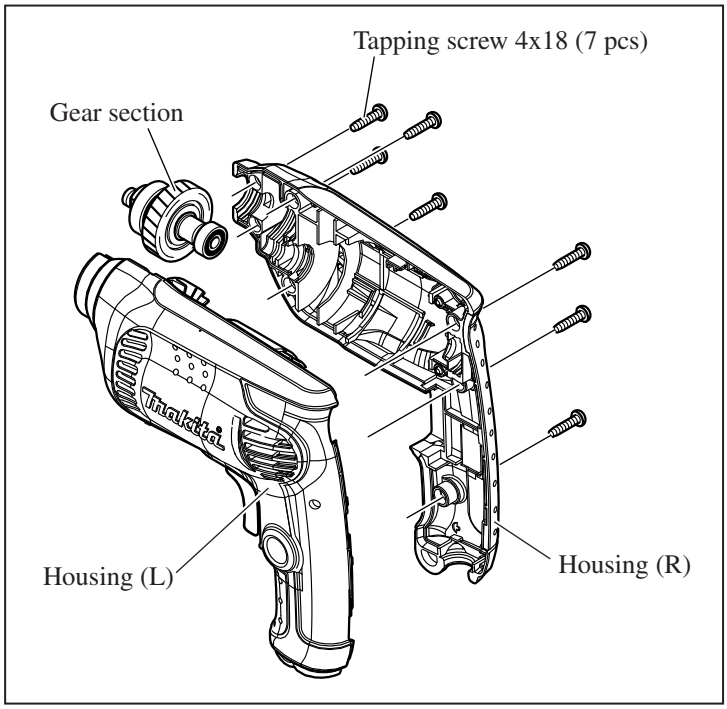


Fig. 6

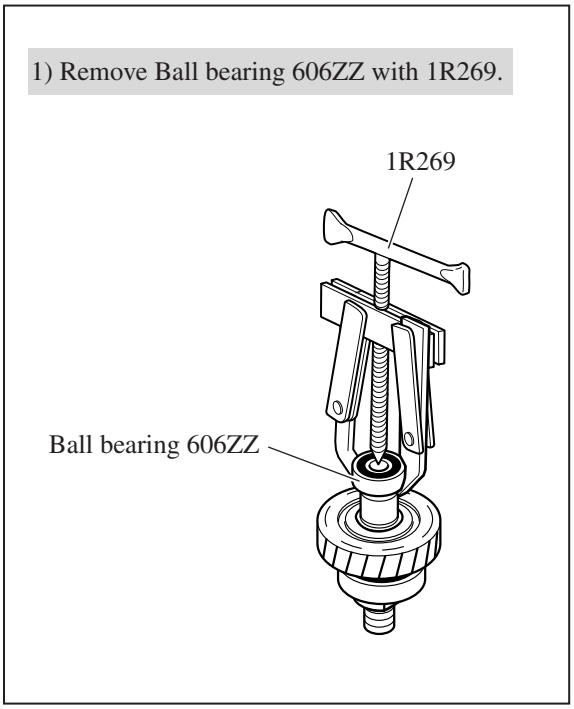


Fig. 7

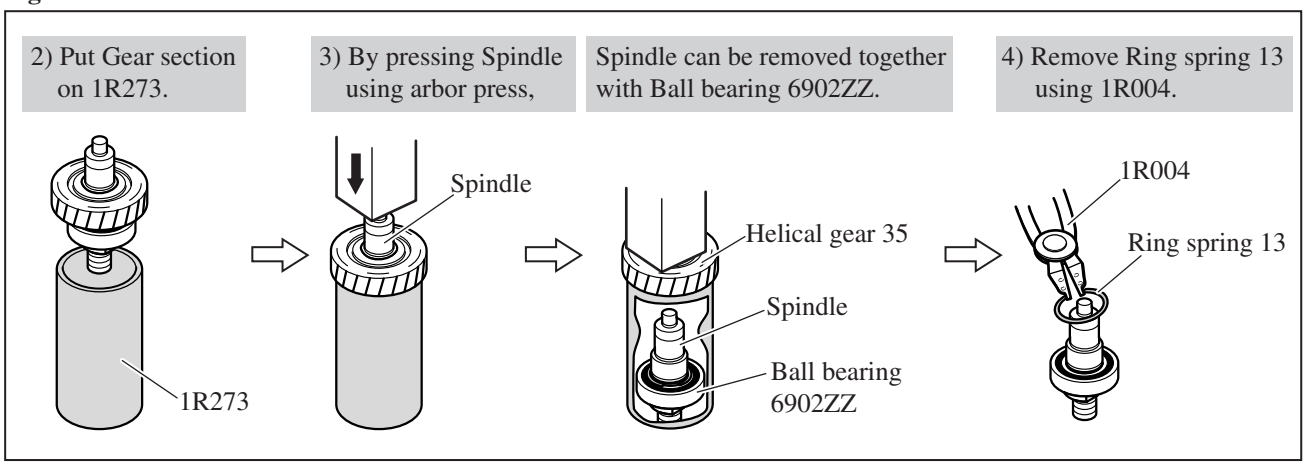
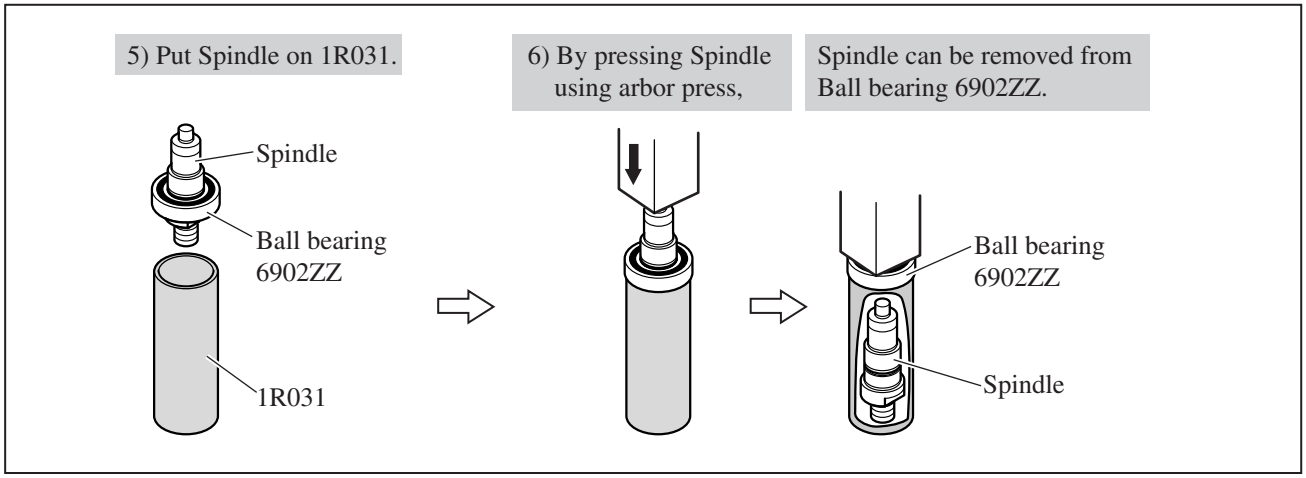


Fig. 8



Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -2. Gear Section (cont.)

ASSEMBLING

1) Assemble Gear section as illustrated in **Fig. 9** to **Fig. 12**.
2) Assemble Gear section to Housing (L). (**Fig. 5** in page 6)

Fig. 9

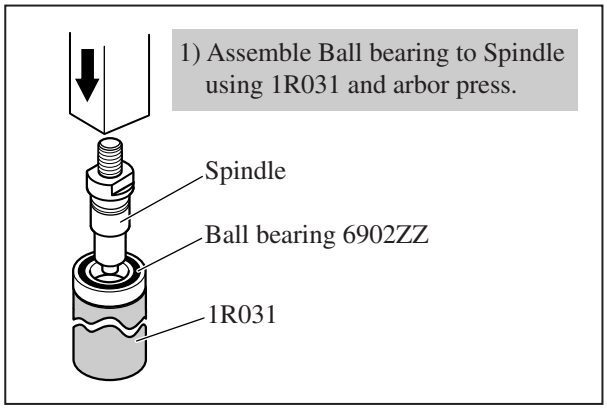


Fig. 10

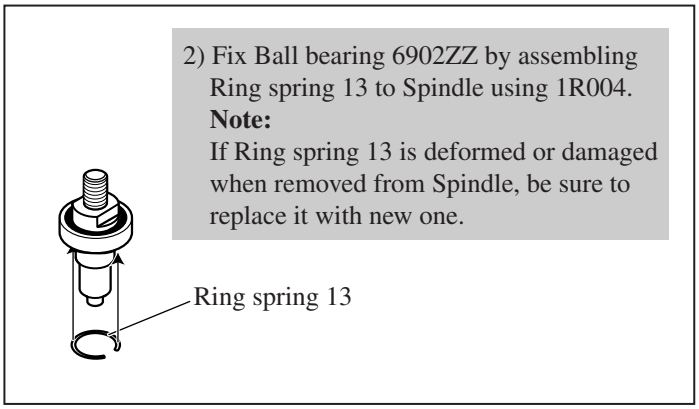

2) Fix Ball bearing 6902ZZ by assembling Ring spring 13 to Spindle using 1R004.
Note:
If Ring spring 13 is deformed or damaged when removed from Spindle, be sure to replace it with new one.
Ring spring 13

Fig. 11

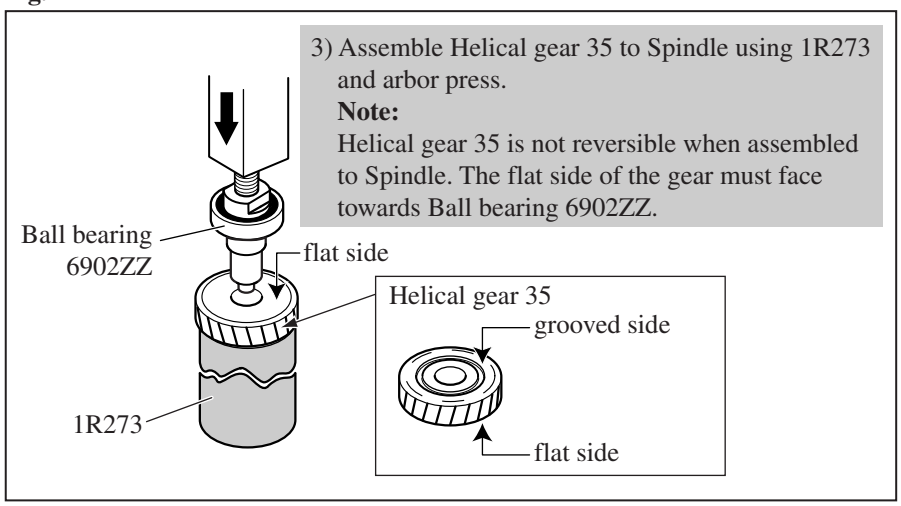
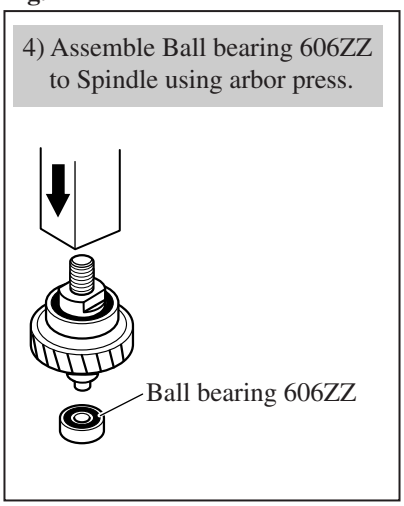

3) Assemble Helical gear 35 to Spindle using 1R273 and arbor press.
Note:
Helical gear 35 is not reversible when assembled to Spindle. The flat side of the gear must face towards Ball bearing 6902ZZ.
Ball bearing 6902ZZ
flat side
1R273
Helical gear 35
grooved side
flat side

Fig. 12



[3] -3. Motor Section

DISASSEMBLING

1) After separating Housing (R) from Housing (L), disconnect Carbon brushes from Armature commutator by pulling off Brush holders from Housing (L). Disassemble Motor section from Housing (L). (**Fig. 13**)
2) Pull out Armature from Field. (**Fig. 14**)

Fig. 13

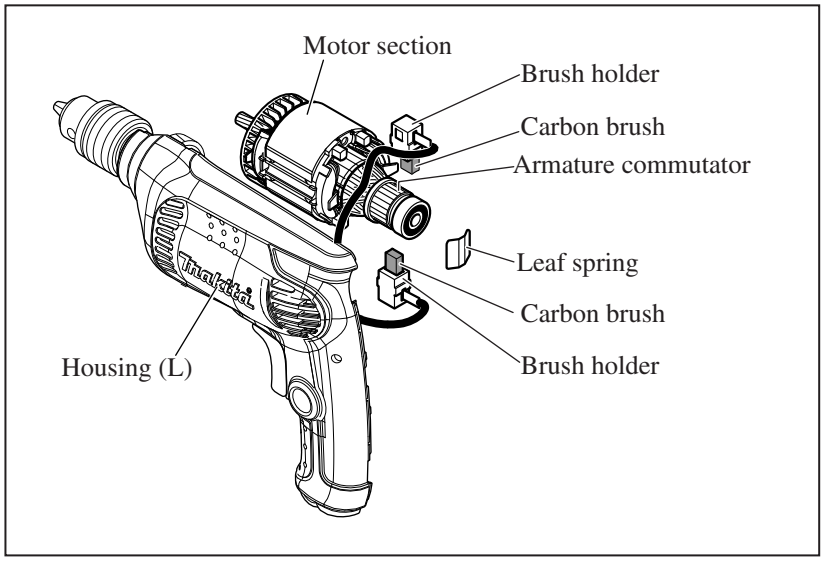
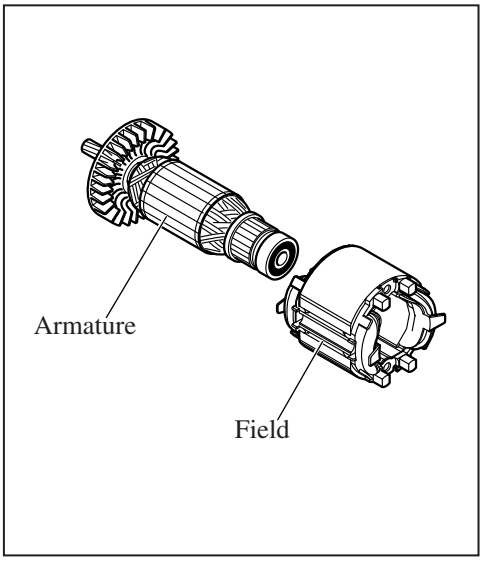


Fig. 14



Repair

[3] DISASSEMBLY/ASSEMBLY
[3] -3. Motor Section (cont.)

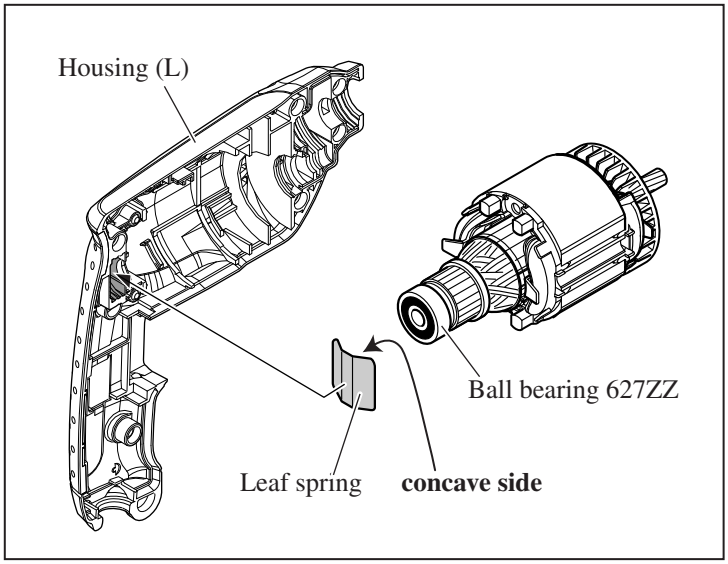
ASSEMBLING

Do the reverse of the disassembling steps.

Note:

Leaf spring is not reversible when assembled to Housing (L). The concave side must face towards Ball bearing 627ZZ on Armature. (**Fig. 15**)

Fig. 15

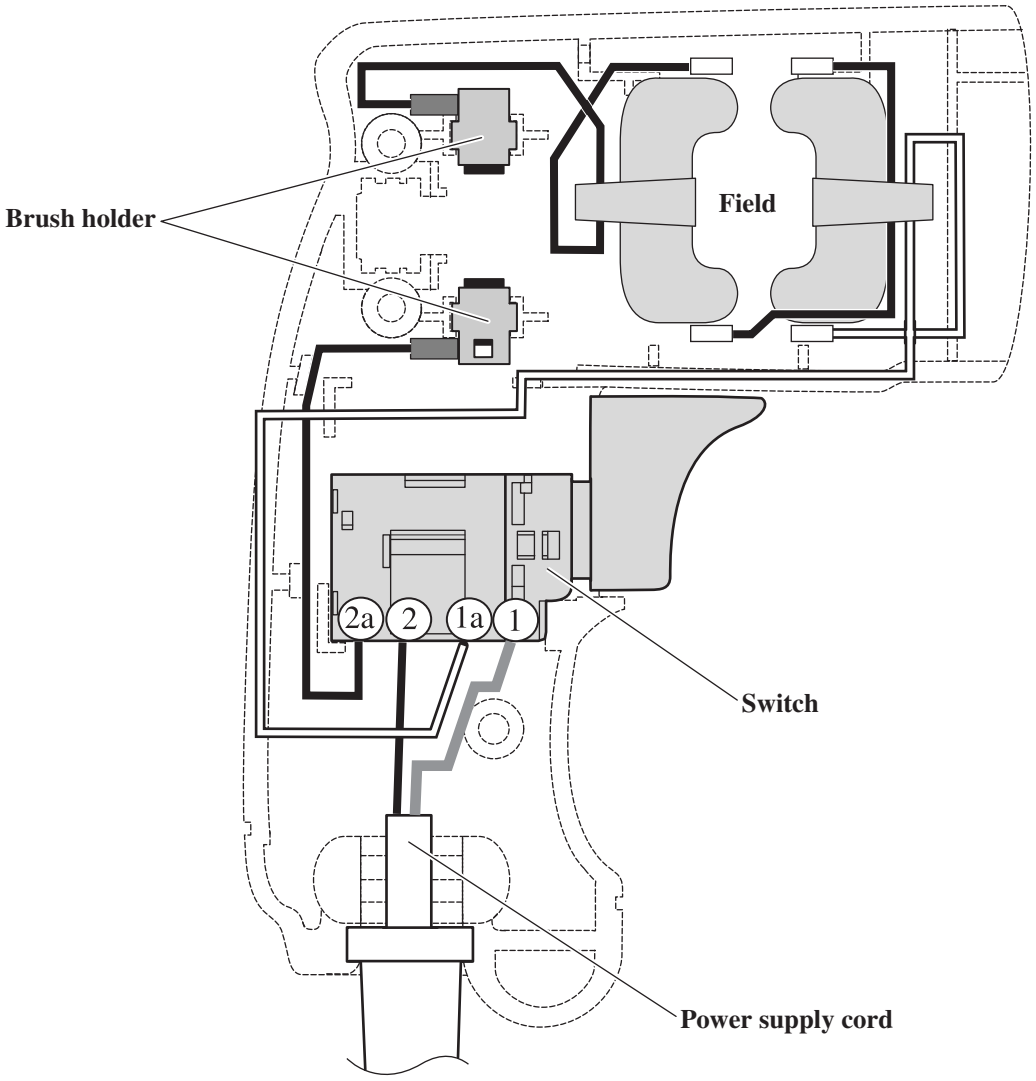


Circuit diagram

Model 6411 (without Variable speed control and Reverse switch)
Machines Without Choke Coil and Noise Suppressor

Fig. D-1

Color index of lead wires' sheath	
Black	
White	

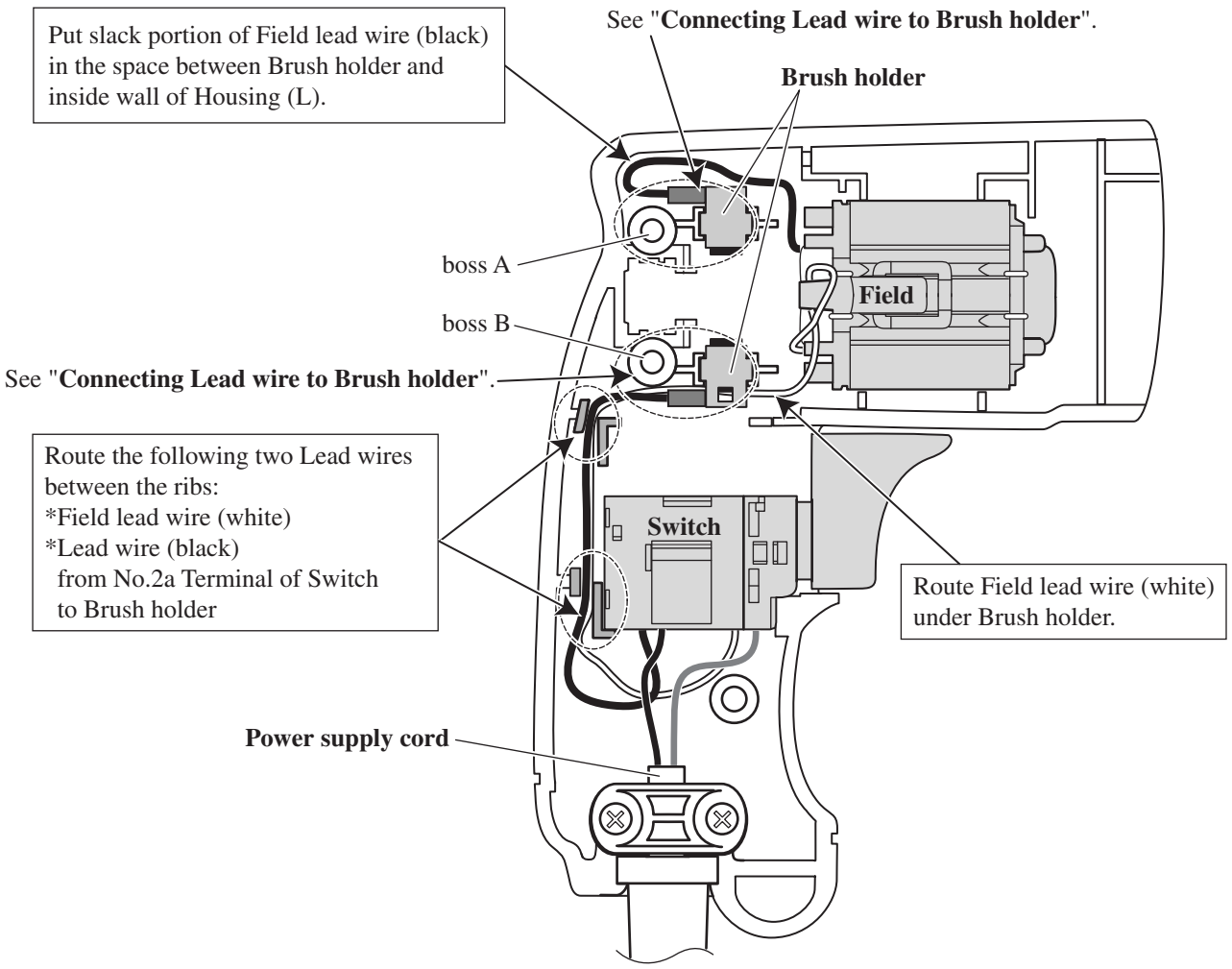


► Wiring diagram

Model 6411 (without Variable speed control and Reverse switch)
Machines Without Choke Coil

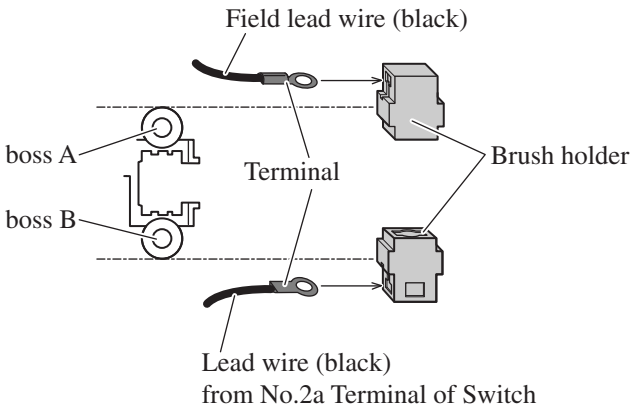
Important: Do not put slack portion of any Lead wire in the space surrounded by Field and Brush holders. Otherwise Lead wires will be broken by rotating Armature.

Fig. D-2


Put slack portion of Field lead wire (black) in the space between Brush holder and inside wall of Housing (L).
See "Connecting Lead wire to Brush holder".
Brush holder
boss A
boss B
Field
See "Connecting Lead wire to Brush holder".
Route the following two Lead wires between the ribs:
*Field lead wire (white)
*Lead wire (black) from No.2a Terminal of Switch to Brush holder
Switch
Route Field lead wire (white) under Brush holder.
Power supply cord

Connecting Lead wire to Brush holder

1) Brush holders are not reversible when assembled to Housing (L). Terminal insertion hole of each Brush holder must be positioned outside boss A/boss B.
2) Do not route each Lead wire inside boss A/boss B.



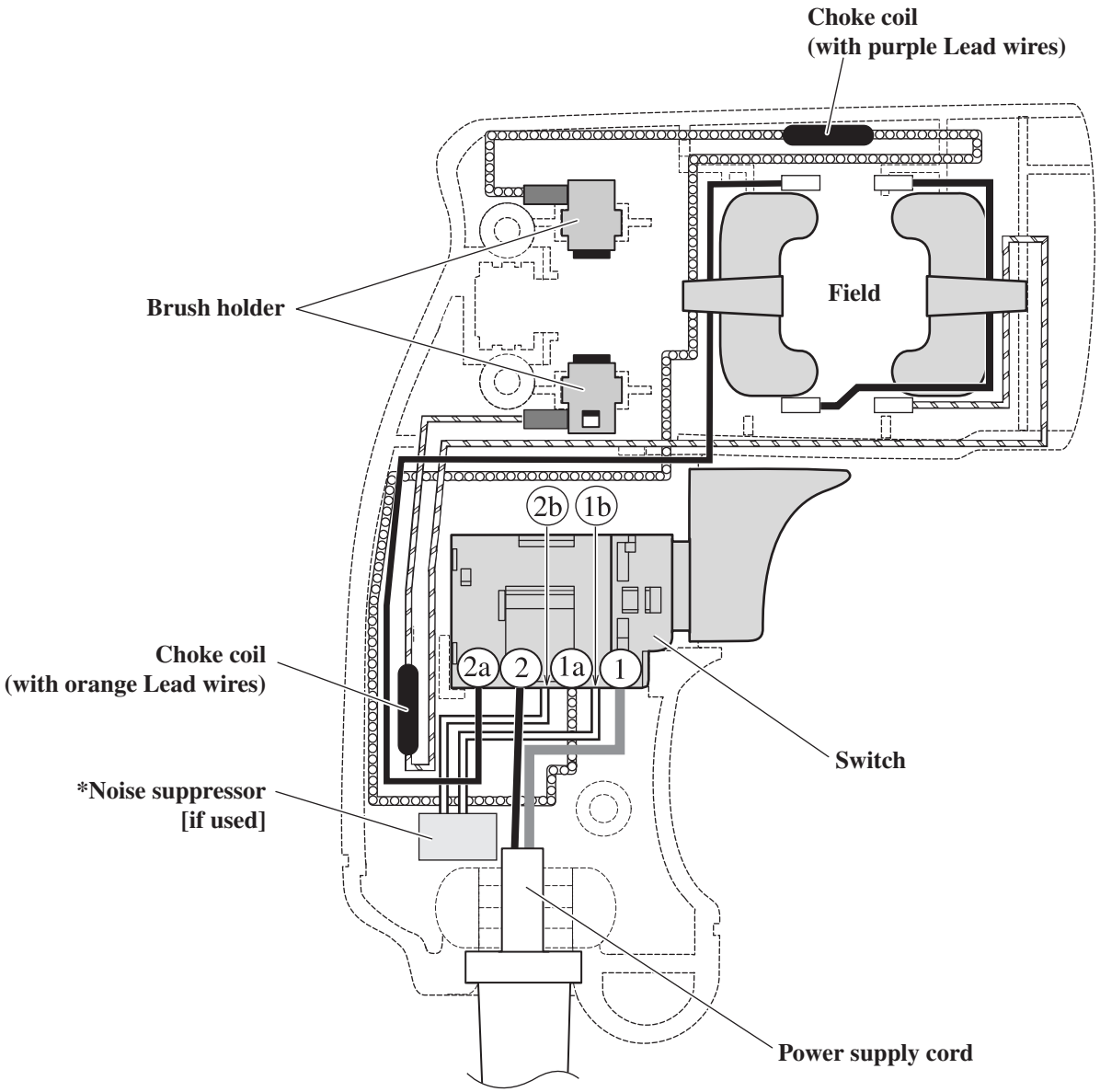
Circuit diagram

Model 6411 (without Variable speed control and Reverse switch)
Machines With Choke Coil

Fig. D-3

Color index of lead wires' sheath	
Black	
White	
Orange	
Purple	

***Note:** Some countries do not use Noise suppressor.



Wiring diagram

Model 6411 (without Variable speed control and Reverse switch)

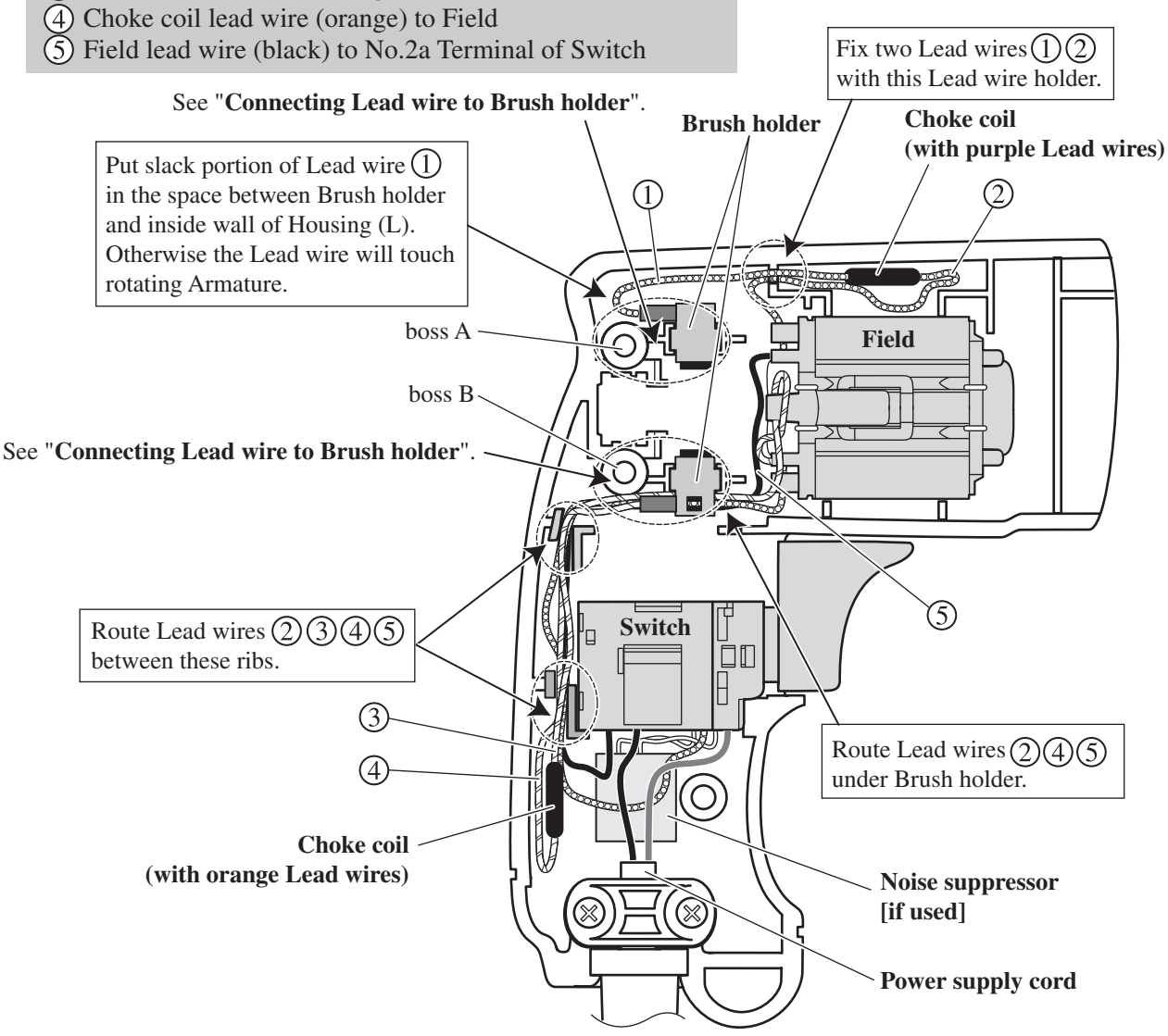
Machines With Choke Coil

Important: Do not put slack portion of any Lead wire in the space surrounded by Field and Brush holders. Otherwise Lead wires will be broken by rotating Armature.

Note: 1) Some countries do not use Noise suppressor.
2) Put Choke coils and Noise suppressor (if used) in place as illustrated in **Fig. D-4**.

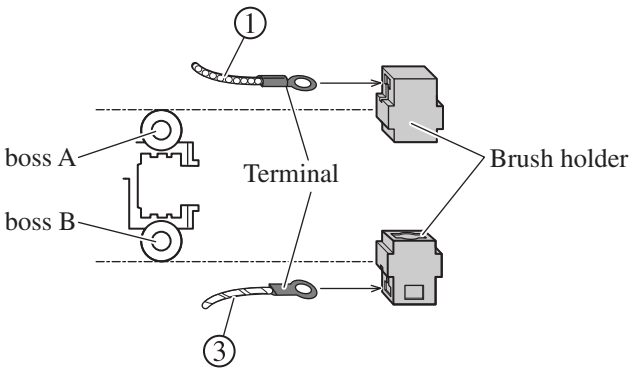
Fig. D-4

Lead wires
① Choke coil lead wire (purple) to Brush holder
② Choke coil lead wire (purple) to No.1a Terminal of Switch
③ Choke coil lead wire (orange) to Brush holder
④ Choke coil lead wire (orange) to Field
⑤ Field lead wire (black) to No.2a Terminal of Switch


Fix two Lead wires ①② with this Lead wire holder.
See "Connecting Lead wire to Brush holder".
Brush holder
Choke coil (with purple Lead wires)
Put slack portion of Lead wire ① in the space between Brush holder and inside wall of Housing (L). Otherwise the Lead wire will touch rotating Armature.
boss A
boss B
See "Connecting Lead wire to Brush holder".
Field
Switch
Route Lead wires ②③④⑤ between these ribs.
Route Lead wires ②④⑤ under Brush holder.
Choke coil (with orange Lead wires)
Noise suppressor [if used]
Power supply cord

Connecting Lead wire to Brush holder

1) Brush holders are not reversible when assembled to Housing (L). Terminal insertion hole of each Brush holder must be positioned outside boss A/boss B.
2) Do not route each Lead wire inside boss A/boss B.



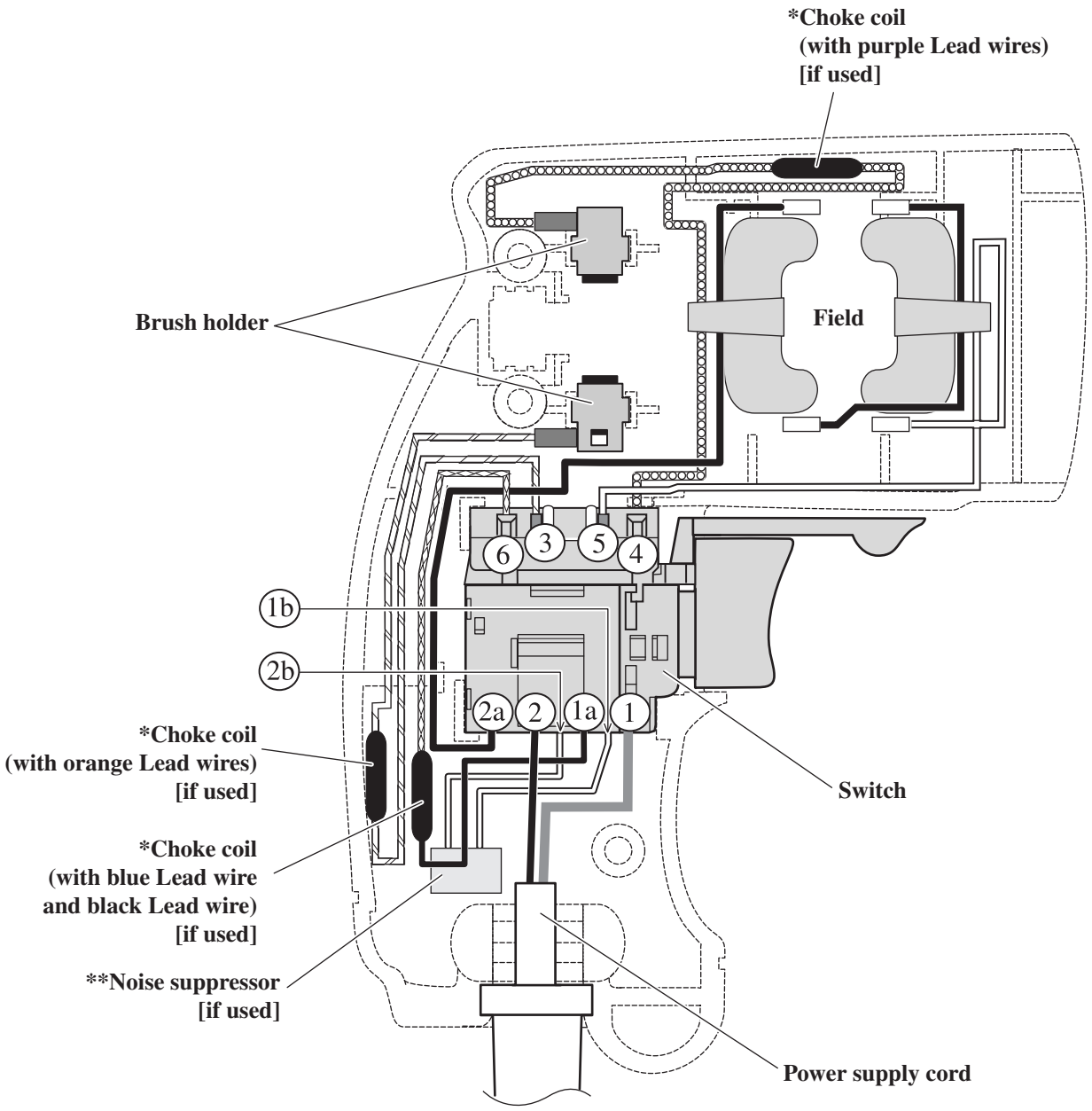
Circuit diagram

Models 6412, 6413, M611 (with Variable speed control and Reverse switch)

Fig. D-5

Color index of lead wires' sheath	
Black	
White	
Orange	
Blue	
Purple	

Note:
*Choke coil (with blue Lead wire and black Lead wire) is reversible when connected to Switch.
**Some countries do not use Noise suppressor or Choke coils.



Wiring diagram

Models 6412, 6413, M611 (with Variable speed control and Reverse switch)

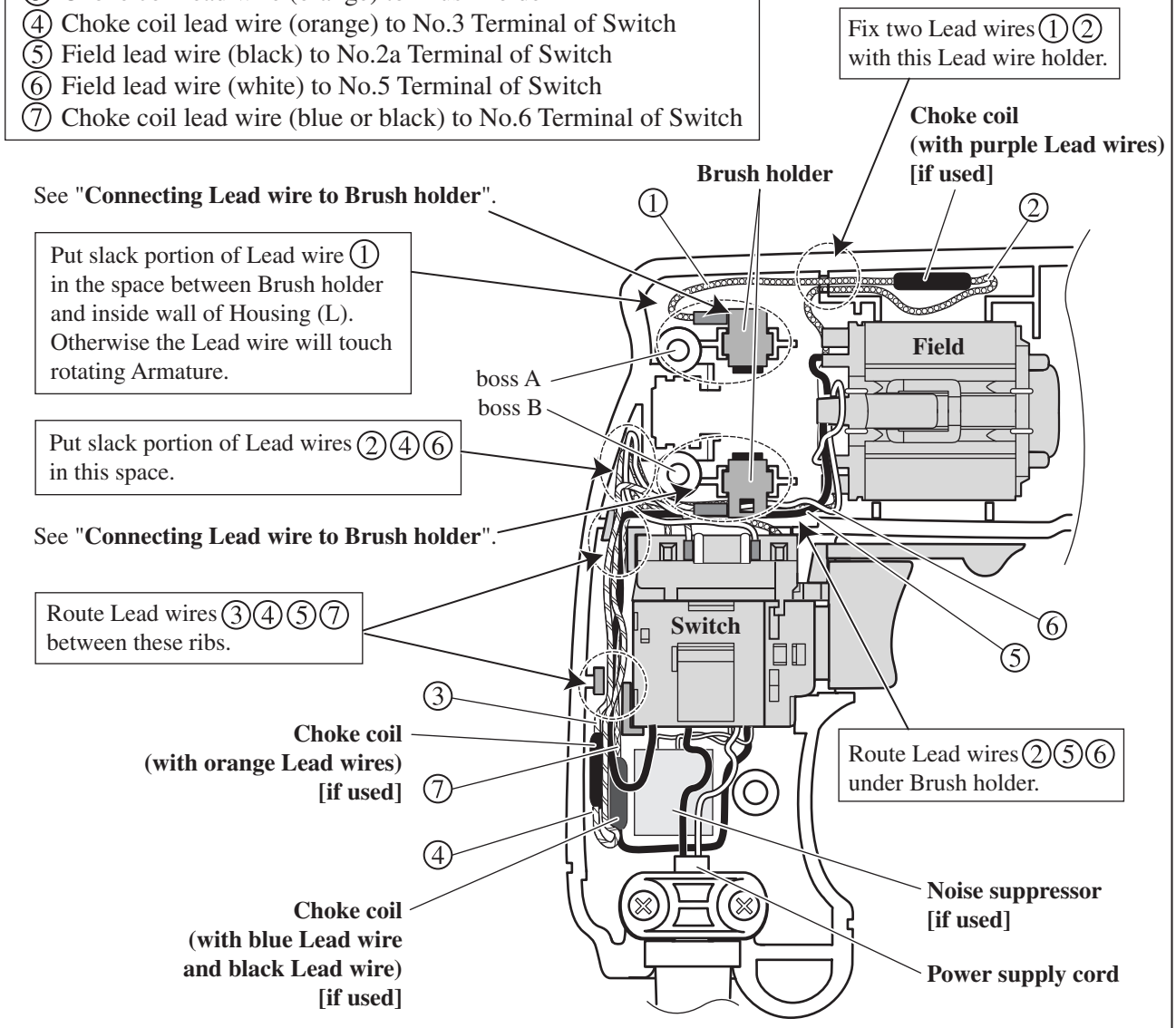
Important: Do not put slack portion of any Lead wire in the space surrounded by Field and Brush holders. Otherwise Lead wires will be broken by rotating Armature.

Note: 1) Some countries do not use Noise suppressor or Choke coils.
2) Put Choke coils and Noise suppressor (if used) in place as illustrated in **Fig. D-6**.
3) Choke coil (with blue Lead wire and black Lead wire) is reversible when connected to Switch.

Fig. D-6

Lead wires

① Choke coil lead wire (purple) to Brush holder
② Choke coil lead wire (purple) to No.4 Terminal of Switch
③ Choke coil lead wire (orange) to Brush holder
④ Choke coil lead wire (orange) to No.3 Terminal of Switch
⑤ Field lead wire (black) to No.2a Terminal of Switch
⑥ Field lead wire (white) to No.5 Terminal of Switch
⑦ Choke coil lead wire (blue or black) to No.6 Terminal of Switch


Fix two Lead wires ①② with this Lead wire holder.
Choke coil (with purple Lead wires) [if used]
Brush holder
See "Connecting Lead wire to Brush holder".
Put slack portion of Lead wire ① in the space between Brush holder and inside wall of Housing (L). Otherwise the Lead wire will touch rotating Armature.
Field
boss A
boss B
Put slack portion of Lead wires ②④⑥ in this space.
See "Connecting Lead wire to Brush holder".
Route Lead wires ③④⑤⑦ between these ribs.
Switch
Choke coil (with orange Lead wires) [if used]
Route Lead wires ②⑤⑥ under Brush holder.
Noise suppressor [if used]
Choke coil (with blue Lead wire and black Lead wire) [if used]
Power supply cord

Connecting Lead wire to Brush holder

1) Brush holders are not reversible when assembled to Housing (L). Terminal insertion hole of each Brush holder must be positioned outside boss A/boss B.
2) Do not route each Lead wire inside boss A/boss B.